NAVAL POSTGRADUATE SCHOOL

Monterey, California

THESIS

SURPLUS VALUE IN
ORGANIZATIONAL COMMUNICATION

by

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March, 1992

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Unclassified

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Naval Postgraduate School 6b. OFFICE SYMBOL (*If applicable*) 55	7a. NAME OF MONITORING ORGANIZATION Naval Postgraduate School
6c. ADDRESS (*City, State, and ZIP Code*) Monterey, CA 93943-5000	7b. ADDRESS (*City, State, and ZIP Code*) Monterey, CA 93943-5000
8a. NAME OF FUNDING/SPONSORING ORGANIZATION 8b. OFFICE SYMBOL (*If applicable*)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (*City, State, and ZIP Code*)	10. SOURCE OF FUNDING NUMBERS Program Element No / Project No / Task No / Work Unit Accession Number

11. TITLE (*Include Security Classification*)
SURPLUS VALUE IN ORGANIZATIONAL COMMUNICATION

12. PERSONAL AUTHOR(S) Foster III, Scott E.

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (*year, month, day*)	15. PAGE COUNT
Master's Thesis	From To	March 1992	63

16. SUPPLEMENTARY NOTATION
The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

17. COSATI CODES			18. SUBJECT TERMS (*continue on reverse if necessary and identify by block number*)
FIELD	GROUP	SUBGROUP	Communication, Computers, Office Automation, Desktop Publishing, Economics, Organizational Communication.

19. ABSTRACT (*continue on reverse if necessary and identify by block number*)

This thesis presents a model of communication value as a function of organizational resources consumed in preparing communications. The value to an originator of a communication is based on the perception of the available resources consumed in preparing that communication. An originator consumes resources to satisfy the objective elements of information value (accuracy, timeliness, and relevance) and subjective elements (format and presentation quality). Even when the objective elements of value are satisfied, an originator continues to consume resources in pursuit of enhanced presentation quality through subjective embellishment. An originator is motivated to over-prepare by competition, maintenance of face, and self-efficacy mechanisms. A recipient's value function is based on key objective elements of information value. The subjective elements have value only to the extent that they improve the reception of the objective elements. That value diminishes as resources are consumed in preparing a communication. Surplus value is introduced as the difference between a recipient's value and an originator's value of a given document, at some quantity of resources consumed in preparation.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION	
☒ UNCLASSIFIED UNLIMITED ☐ SAME AS REPORT ☐ DTIC USERS	Unclassified	
22a. NAME OF RESPONSIBLE INDIVIDUAL William J. Haga	22b. TELEPHONE (*Include Area code*) 408-646-3094	22c. OFFICE SYMBOL AS/HG

DD FORM 1473, 84 MAR 83 APR edition may be used until exhausted
All other editions are obsolete

SECURITY CLASSIFICATION OF THIS PAGE
Unclassified

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Surplus Value in Organizational Communication

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN INFORMATION SYSTEMS MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

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The sky was blue
the sea was flat
I caught a fish:
imagine that.

I. INTRODUCTION

A. BACKGROUND

In August, 1991, the San Jose Mercury News ran a front-page feature article entitled "Shackled to Technology?" that raised a provocative question: Have we become so enamored of our computers that we've lost sight of why we invented them in the first place? (Gomes, 1991) The bigger question, examined in the article, revolves around the failure of office automation to deliver a payoff promised ten years ago. In the years since the arrival of personal computers, there is yet to appear any evidence of the anticipated revolution in the way we do business. The article cites Stephen S. Roach, a Morgan Stanley economist, as having argued for years that, despite the infusion of tens of millions of personal computers into the workplace, white-collar productivity continues to decline. The article goes on to explain current thought on the reasons for this phenomenon. First, computers are making significant contributions in data-intensive areas that are difficult to quantify because of the nebulous goals of the white-collar sector. Second, users are still unfamiliar with the technology and software is not yet developed enough to take full advantage of the power of computerization. Third, desk-top machines are brought into the organization with no clearly defined purpose, and become "elaborate time-wells...luring people into spending untold hours on intricate spreadsheets or

elaborate memos and presentations that are of doubtful real value." (Gomes, 1991)

The seductive powers of a personal computer can be observed in the everyday operations of a business, a bureaucracy or an individual. Consider the following scenes, each an anecdote observed by the author:

Scenario 1

A middle manager, preparing his monthly production report for his vice-president, realizes that the numbers he must include do not reflect the increases in production for which he had hoped. In the absence of good news in the report, the manager seeks to make as good a physical presentation as possible. In the opinion of the manager, the normal format of the report (a simple typed *memo including* columns of production figures accompanied by a line graph tracking the year's progress) does not seem to be different enough to be distinguishable from the other reports his boss sees. The manager is also concerned because this is the only time during the month that a formal communication occurs between his boss and himself, and he wishes to make the greatest impression. Using the capabilities of his word processor and color laser printer, he spends an entire day experimenting with multiple fonts, variable margins, left- and full-justification, and a multitude of graphic presentations of data possible with the four thousand dollars' worth of equipment he has at his desk. Where the memo used to be typed by a secretary in ten minutes, with a simple pen-and-ink graph drawn at the bottom of the sheet, the manager has

consumed an entire day of managerial time fully exercising the desktop publishing resources at his disposal. The vice president is unimpressed with the presentation and immediately recognizes both the uninspired production figures and the apparent waste of time and energy on producing such a simple report.

Scenario 2

A university graduate academic department has spent over a quarter million dollars over the past five years on personal computers, laser printers and networking hardware for each of the faculty, as well as the clerical staff. The faculty members now provide at least a first draft, if not a final copy, of all papers and correspondence, and are able to create their own transparencies and other educational aids in their own offices. The faculty has not significantly increased research output, the number of students has not increased, and the quantity of correspondence generated by the department has also remained fairly constant. Since the addition of the technology to the department, the clerical staff has doubled. Although the additional computational power of the computers has assisted some members of the faculty in their research efforts, there does not seem to be any correlation between dollars spent on new technology and productivity.

Scenario 3

At a small state government office of one supervisor, five staff members and one secretary, the addition of personal computers and dot-matrix pin printers to each staff desk allowed everyone to generate their own documents

and reports, for both in-house and external circulation. The secretary, no longer required to type correspondence, became virtually a receptionist. As a bureaucracy, the required output of the office staff remained constant, despite the addition of computerization. When a laser printer was added to the secretary's personal computer system (ostensibly for the printing of the supervisor's correspondence and other critical documents), a new, de facto standard came into being. Now, everybody had to use the laser printer; their own dot-matrix printers were used only for draft copy. This created a queue among the staff, compounded by the creative features available with the new printer. First drafts on the laser printer were followed by second and third as margins, typefaces and graphic embellishments were tried. The secretary eventually placed the laser printer and her computer in a central, common office area where all staff could use it individually. The printing queue eventually came to consume large quantities of each staff member's time and served as an informal social area for the office.

The examples are illustrative of a phenomenon that is familiar to anyone who has worked with office automation in general, and desktop publishing in particular. The promised payoff of the last ten years' investment in computer technology is not occurring as anticipated by the public and promised by the marketers.

B. SURPLUS VALUE IN ORGANIZATIONAL COMMUNICATION

The purpose of this thesis is to propose a model that explains, in part, the destination of resources originally intended to increase productivity, and some of the reasons why they become misdirected from their intended use. I propose that a difference exists between a sender and a recipient in the value each assigns to a communication, for any given quantity of resources consumed in preparing that communication. A sender will spend time, effort and resources generating and elaborating a document that are not appreciated by a recipient. A recipient, is interested only in key objective elements of information. In the recipient's view, any embellishment beyond that required to meet normal standards of business communication will have limited value.

Presentation of a model of surplus value will be preceded by a review of communication and economic theories which are similar enough to the concept of surplus value to bear discussion. The mathematical theory of communication, the conduit metaphor in communication, and the economic principle of consumer surplus will each be discussed.

The model of surplus value will then be derived in three phases. First, the sender's value curve will be presented, along with an explanation of possible motives for sender behavior in resource consumption. The concepts of face, self-efficacy, goal visualization and competition will be discussed. Also, the major themes in the area of information value will be reviewed. Next, a recipient's value curve will be presented, again drawing on the elements of

information value. Finally, the two curves will be combined with a discussion of their relative values, illustrating the concept of surplus value in communication.

Following the derivation of the model, the concept of surplus value will be discussed with respect to the prevailing theories in the economics and communication sciences. Organizational and social costs of surplus value will be discussed.

II. RELATED THEORIES

A. INTRODUCTION

The model of surplus value in communication has as its basis the difference in value placed upon a communication by its originator and recipient, and evolves from a combination of both communication and economic theory. Although the model and its derivation will be presented primarily in economic terms, the importance of communication theory cannot be overestimated in its understanding. While a comprehensive review of communication and economic theory is beyond the scope of this thesis, a discussion of the model with respect to prevailing thought is warranted. Three theories will be presented. (1) The mathematical theory of communication isolates the components of communication in a systems model that considers a message as a signal along a channel between sender and recipient that is subject to various degrading influences. (2) The theory of communication known as the conduit metaphor discusses the differences in interpretation of messages from the sender's and receiver's views, and the limitations of the English language in resolving those differences. (3) The economic concept of consumer surplus explains the added value a consumer achieves in making a purchase, beyond that which is actually asked for or paid. These theories are similar enough to the model of surplus value that they each bear discussion separately.

B. THE MATHEMATICAL THEORY OF COMMUNICATION

In its simplest form, a communication system has four elements: a source, a communication channel, a destination, and a message. The source chooses one of many possible messages and sends it to a destination via a communication channel. This is the basis of the mathematical theory of communication, developed by Shannon and Weaver (1949), from whose work the following discussion is drawn.

When a message leaves an information source, it moves to a transmitter or sender, which changes it into a signal that may be sent over a channel to a receiver. This is the encoding process--a message is constructed into a form that can be transmitted to a recipient designated for that system. In human vocal communication, the vocal system is the encoder, changing messages from the brain (the information source) into speech. The channel then carries the encoded message to the receiver. Then decoding occurs--the receiver converts the signal back into a message for use at the destination. The ear is the receiving device and the brain decodes words into an understandable message.

While in theory the communication process is very simple, in execution it does not always occur as expected. The primary complication is noise in the channel: during transmission, there may be unwanted additions to a signal, such as distortions, as of sound or shape, and errors in transmission. Defining the characteristics of noise, and calculating its effect on accurate reception is the first step toward minimizing and eliminating its effects.

The amount of noise in transmission is directly related to the chance the receiver will not receive the message as it was transmitted. At worst, the message will not be received at all. For example, sometimes the static on the radio is so great that the music and announcements are unintelligible. In electronic transmissions, such as computer networks, noise on the transmission lines may prevent the receiving device from accurately capturing the data that have been transmitted.

Noise can also play an important role in information systems used by managers. When reports are generated, it is possible that the manager will not receive clearly the information presented in the report. For example, suppose that the goal of the report is to signal to the manager that production has fallen off to an unacceptable level. If the report contains too much noise, in the form of superfluous graphics, excessive and distracting verbiage, or simply too much information, the manager may not be able to pick out the important signal that production has dropped.

The role of noise in communication is an important concept in understanding the development of the model of surplus value in organizational communication. The value a recipient places on a communication will be shown to be greatly influenced by the level of noise added to the signal by the originator.

C. THE CONDUIT METAPHOR

The conduit metaphor was advanced by linguist Michael Reddy as a means of explaining the limitations of the English language as a tool for communication. Reddy suggests that English speakers talk about communication as if it were a pipeline, or conduit, and this conception actually results in miscommunication (Reddy, 1979). This belief in an artificial conduit from sender to receiver is illustrated in English phrases about communication, such as "he didn't get his idea across," or "are you getting through," or "I don't seem to catch the idea." This emphasis on the physical transfer of meaning between people is a severe oversimplification of communication, and ignores both unintended meanings and intended meanings not received.

The meaning of a written communication entails much more than letters and numbers printed on paper. The meaning of a communication is approximated by the sender within the limitations of the media used; a letter represents a sender's attempts at manipulating symbols to best illustrate an intended message. Meaning itself does not occur until it is created in the mind of a receiver, and is based on a receiver's paradigm of the symbols and media observed.

A number of postulates regarding meaning in communication have been articulated by Redding, the first and most significant of which is that meanings are not transferred: people determine the meanings of words and symbols. The meaning of a communication is not limited to, and may be entirely unrelated to,

the actual words or text. Redding states that anything is a potential message, and that the message received is the only one that counts. Further, communicators will inevitably communicate unintended meanings, which are not realized until created by the receiver (Redding, 1972).

If we are to accept Redding's postulates and Reddy's estimation of the pervasiveness of the conduit metaphor in organizations, then it is intuitively plausible to regularly expect a difference between intended and actual meaning. If we accept that there is a purpose to communication, then there must be a relationship between a sender's intended meaning and a sender's utility.

Intended meaning must have utility, or value; it is judged by an anticipated response of a receiver. Messages eliciting an anticipated response from a recipient will have a higher value to the sender than those failing to do so. Actual meaning must have a value to a recipient as well. It will be assigned based on the receiver's paradigm and, if Redding is correct, is unlikely to be identical to that of the sender.

If we accept Redding's postulates as valid, then there is consistently a difference in meaning, and hence a difference in value, of a communication when judged by its sender and receiver, respectively. While it may be reasonable to assume that a sender might expend an increasing amount of resources toward the assurance of communicating an intended message, acceptance of Redding's postulates would preclude a corresponding assignment by the recipient of a higher or lower value. The existence of these differences in

meaning and value, while arguably situational, support the differences in value to be presented in the model of surplus value in communication.

D. CONSUMER SURPLUS

Consumer surplus may be stated as the difference between the highest amount one would be prepared to pay for a good and the amount one must actually pay for it (Mises, 1963). This surplus is a certainty in the consumer's world, because the price which a person pays for a good can never exceed, and seldom comes up to the price he would be willing to pay, rather than go without it. If this is the case, then the satisfaction he gets from a purchase exceeds that which is given up in that purchase. Therefore, the consumer gains from the purchase a surplus of satisfaction. The excess of price which he would be willing to pay over that which he does actually pay is consumer's surplus, the economic measure of this satisfaction (Marshall, 1961).

For example, consider that you may decide to add eggs to your weekly diet. You would be willing to pay up to $1.00 for an egg, but the price is only $0.60. By purchasing one egg, instead of none, you have received a marginal value of $1.00 by only giving up $0.60. You are now better of by $0.40 for having purchased one egg. Should you now decide to increase your consumption of eggs to two eggs per week, the purchase of the second egg will be of slightly less value to you than the first, say only $1.00. Since the price is still only $0.60, and you have through your purchase of a second egg gained a marginal value of $0.90, you are better off again by $0.30. Now your total

marginal value has increase to $1.90, yet you have only given up $1.20, leaving you better off by $0.70 for the purchase of two eggs. This is not saying that if you had not bought two eggs you would be better off by $0.70. Buying two eggs instead of none makes you as better off as the additional goods you would buy if your income were $0.70 higher. Your indifference rests between having your present income and buying two eggs, or having an income higher by $0.70 and being forbidden to buy any eggs. Further, as your egg consumption increases, each additional egg will yield a slightly lower marginal value until the marginal value of an additional egg will equal its price. The sum of the differences between the marginal value and the egg price is the consumer's surplus. (from Friedman, 1986)

III. THE MODEL OF SURPLUS VALUE IN COMMUNICATION

A. INTRODUCTION

The model of surplus value represents a relationship between a sender and a receiver of a communication based on the value each places on that communication. In explaining the model, it is necessary to review some ideas from the fields of economic, communication and behavioral sciences. Regarding economics, the concepts of value, utility and costs and competition will be discussed. From the communications sciences, the value of information and information effectiveness will be included. Finally, from the behavioral sciences, the concepts of face and self-efficacy will be used to explain the model.

The model will be derived in three phases. First, the sender curve will be derived, and the supporting concepts will be introduced. Next, the recipient curve will be derived, drawing on the ideas presented with the originator curve and including an application of economic and communication theories. Finally, the curves will be combined to illustrate the concept of surplus value in communication.

B. THE SENDER

When communication occurs, there is always some kind of investment or expenditure (Thayer, 1968). Preparing written communications can involve the consumption of any number of resources, from time to computers. A sender of

a message chooses to consume a certain quantity of available resources in preparing a message. The value of a message from a sender's perspective may be said to be related to the amount of resources consumed in preparing it.

1. Sender Costs

The costs associated with written communications in a organization include 1) direct monetary costs, 2) psychological costs, 3) performance loss (job costs), and 4) costs of controlling the other three (Vardaman, 1970). In the world of office automation, we may include in direct monetary costs not only such items as salaries, building (funded) depreciation and clerical supplies, but also equipment costs such as word processors, software and printers. Thayer (1968) also considers intrapersonal costs: the price of investing time and energy in acquiring information and its accompanying opportunity cost on the input side, and the time and energy required for production on the output side.

2. Cost-effectiveness

The link of cost to effectiveness in communication was first made by Thayer in searching for a means of comprehending the economy of communication, necessary to the measurement of communication effectiveness (Thayer, 1968). The relationship of resource consumption to effectiveness of organizational communication was pointed out by Farace, Taylor and Stewart (1978), who said that the effectiveness of communication in an organization is limited by the number and type of resources consumed in communicating.

Their definition of effectiveness is the degree to which an intended objective is achieved. Simply put, in the communications world, according to Farace et al, you get what you pay for.

3. Efficiency and Value

The relationship of cost to effectiveness is the efficiency of a communication act, defined as the ratio between the degree to which the intended objective is achieved (effectiveness) and the resources required to carry out the communication (Pace and Faules, 1989). Defined in terms of value and effort, rather than effectiveness and cost, a similar relationship was defined by McDonough (1963) to include the property of diminishing returns of value on effort expended. McDonough's definition of information value was operative and included as measures 1) the degree to which a problem statement or definition was improved as a result of the information, and 2) the degree to which identification and collection of data relative to the problem's solution improved. Though McDonough's work is based on the value of information relative to the solution of a problem, it connects effectiveness to value, and illustrates the concept of value asymptotically approaching a maximum as resources are consumed.

In order to relate the concepts of communication value, effectiveness, and efficiency to the model of surplus communication, it is necessary to relate these ideas to the preparation of written correspondence. Each have been described so far as dependent variables, attributes of

communication determined by other variables. Effectiveness and efficiency have been discussed, but a clear understanding of the concept of value of communication is necessary to development of the model.

4. The Elements of Value in Communication

The elements of value in written communication have been described as relevance, timeliness, and accuracy (Feltham, 1968). Attributes in the measure of value of information have also been classified as timeliness, contents, format, and cost (Ahituv, 1989).[1] Where Feltham's model focuses on objective criteria of value, Ahituv's model includes the subjective attribute of format. This subjectivity is recognized even in the Aristotelian model of communication, which identifies the two major obstacles to communication as content and media (Rhys, 1946). It is easy to imagine that a sender of a communication, for example, a manager preparing a report, will have little control over the content, or objective elements of value. The remaining element, termed format by Ahituv and media by Aristotle, is entirely subjective and therefore the attribute most easily manipulated by a sender as a means of increasing value. For the purposes of this paper, these subjective elements will be subsumed under the rubric of quality of a communication. It must be clear that the element of quality is a significant and necessary, but not in itself sufficient, element in determining the value of a communication.

[1] Ahituv includes accuracy and relevance as components of content.

A sender of a message may recognize, then, that there exists a relationship between the value of a communication and the resources required to generate it, and that the relationship is diminishing. But the awareness of a sender relative to these two concepts may have little, if any, bearing on a choice of resources to be consumed in preparing a message. Concern on a sender's part over resource consumption will be mitigated by three desires: the desire to save, maintain or gain face, the desire to be effective, and the desire to compete.

5. The Concept of Face

In preparing and transmitting a message, a sender may be said to be initiating, or responding to, a social encounter. If this is true, then social conventions become a consideration for a sender, and may greatly influence actions taken and resources consumed in the preparation of a message. One framework for the explanation of the conventions surrounding a social encounter is the concept of face. The following discussion is drawn from the work of Goffman (1967).

The image of self, in terms of positive social attributes, serves as a definition of face. For one to have face, or maintain face, requires both an internal and external consistency of self-image. Any actions taken to save face or avoid the loss of face are defined as face-work.

During any social encounter, an individual is at risk of losing face. Routine encounters, where the minimum standards for presentation of self are familiar, bear less risk to face. It is important to realize that, due to familiarity

and routineness, the opportunities to gain face in these encounters are minimal. Should an individual be tempted, however, to gain face through such an encounter (by performing face-work), the temptation will be balanced by a reluctance to expend more energy than necessary on a familiar social encounter. A common example for many of us is the minimum attire required to retrieve the Sunday paper from the front porch. An implicit understanding of the circumstances by all neighbors, based on familiarity and a ready willingness to excuse, allows such an act without the risk of loss of face. Should one be tempted for a moment on a Sunday morning to impress one's neighbors by emerging from the front door fully clothed, shaved and with a bounce in one's step, that temptation would most likely be rapidly overcome by the effort required to accomplish such a feat. An individual in such circumstances is then likely to conserve the energy required to execute such an action, capitalizing on the familiar, forgiving environment.

In contrast, unfamiliar encounters involve increased risk to face, even if the encounter is perceived as potentially routine. Desiring a minimum risk to face, individuals in this situation are likely to ensure that minimum standards for presentation of self are exceeded, through the use of face-work. In the case above, the Sunday morning scene may be changed to include an early-rising new next-door neighbor, outside watering the garden. Although on may not be willing to sacrifice the bathrobe standard, in this case one might consider it prudent to don slippers and comb one's hair to appear slightly more

civilized for this first encounter. These actions, as face-work, bring to an unfamiliar yet routine situation a small margin of safety in maintaining face.

The importance of face continues throughout the spectrum of self-images and social encounters. Should an individual choose to present an image of perfection, then that image is at risk during every social encounter. If the image of perfection is not maintained, loss of face will result. The only alternative for an individual in this case is to aggressively perform face-work toward the maintenance of a perfect presentation of self. Any opportunities with a perceived potential of gaining face must be pursued with face-work. If the neighbor in the example is discovered to be the CEO of one's place of employment, then the opportunity to gain face may by taken by appearing fully prepared to meet the day, complete with a vigorous handshake and hearty introductions all around. The risk to this presentation of perfection is, of course, the probability of having to maintain or exceed it on all future encounters.

6. Face, Value, and Resource Consumption

In applying the concepts of face and face-work to a sender of a written communication, it is best to frame the discussion in terms of the potential of a communication (as a social encounter) to affect the sender's face. The generation of a document of minimum importance will be the first situation considered.

Maintaining face, or avoiding the loss of face, is a primary consideration in every social encounter, including reaching a decision on the quality of a document of minimum importance (just as in the newspaper retrieval example). A sender must establish a quality standard that satisfies two conditions. First, the document must be of sufficient quality to not result in a loss of face. Second, because the opportunity to gain face is minimal, sound business practice would dictate that a minimum quantity of resources must be consumed in its preparation. It is critical to note that because face is so fragile, the primary consideration is the sender's face, and the secondary, or dependent consideration, is the amount of resources to consumed. The reconciliation of these two considerations provides a sender with a conceptual link between a quantity of available resources and the importance of a document. To extend this line of reasoning further, it may be said that the importance of a communication is directly related to the percentage of available resources consumed in its preparation. In this initial case, the consumption of a minimum percentage of resources in preparing a communication of minimum importance, a sender establishes a minimum value of that communication. Recalling the discussion of face and the effect on resource consumption in routine, unfamiliar situations, it bears noting that even at this minimum level of importance, a sender is likely to consume a slightly greater amount of resources than in a familiar situation, as added insurance against an inadvertent loss of face.

Opportunities to lose or gain face are not limited to routine encounters of minimum importance. As might be expected, written communications which have a very high potential for the loss (or gain) of face will be regarded as very important by a sender. If a sender, in preparing an important communication desires to present an image of perfection of self, then it follows that the sender will desire to create a communication of perfect value. If it is true that a sender directly relates the quantity of resources consumed in preparation to the value of a communication, there will be a desire to commit a perfect, or total, amount of resources. But since there is a finite amount of resources available, there cannot be a total commitment of resources. Available resources will be consumed until competition for limited resources halts further consumption.

7. The Self-Efficacy Mechanism

The desire to achieve total commitment of resources in pursuit of the perfect presentation of self has been explained in other behavioral theories. Bandura (1983) described this desire as a function of self-efficacy mechanisms: that self-dissatisfaction in performance and perceived self efficacy in goal attainment greatly influence effort toward achieving a goal. That is to say, where a goal exists, and a means of performance feedback is immediately available, the effort toward achieving that goal will greatly intensify. Consider the familiar example of creating a report on a personal computer, using the latest word-processing software. If the goal is perfection, then the originator

may envision an abstraction of a report which uses a maximum of the "bells and whistles" available on the software: fonts, colors, sizes , special effects, shadings, etc. A sender may not be satisfied until one of two events occurs: either every feature within his or skill level has been tested for inclusion, either physically or mentally, or the maximum time commitment to the project has been exceeded, termination the preparation before perfection has been achieved. In both cases, an originator, with a goal of perfection and immediate visual feedback, will be driven to achieve the goal.

8. Visualization of Goals

A second theory explaining similar behavior may apply to a sender's drive to perfect value and perfect commitment of resources. Clear articulation of a goal, resulting in thorough understanding and actual visualization of a goal, greatly increases the likelihood of goal attainment (Cooperrider, 1990). In the case given above, a sender of a communication can visually experience all the potential uses of a word processor's features prior to actually using (or learning to use) them. This visualization of 'what can be' may drive an originator toward use of all these features.

9. Competition

The desire for a sender to present the best possible document may also be driven by a perceived need to compete for a recipient's attention. In the absence of feedback from the recipient, a sender may be in the position of estimating the quality of the documents generated by those with whom he

competes for a recipient's favor. If a sender has approached a limit on the value components of timeliness, accuracy and relevance, the remaining attribute of presentation quality may be his only means of competing. The need to compete will then drive an originator to consume resources until the marginal value of those resources equals either that of the anticipated benefit, or the marginal value of another disposition of those resources. In the absence of recipient feedback, a sender has no means of knowing the effect of these efforts; he is likely, therefore (along with his competitors), to far exceed the resource consumption necessary to achieve a reasonable goal of effective communication.

10. Marginal Value of an Iteration

The ease by which a letter may be re-written, a graphic added, a font changed, or a margin widened has increased dramatically since the days of the typewriter. The seductiveness of "just one more time" behavior which has been observed in many a computer user may be one of the major contributors to resource consumption, particularly the use of the writer's time. While the effort required to use a typewriter to retype a document is large, and therefore easily grasped in avoiding wasted time, the ability of a personal computer user to make one more change in the text, or experiment with various styles, is small and could lead an unsuspecting sender over the cliff of waste in tiny, imperceptible steps.

11. Sender's Maximum and Minimum Values

Communications valued highly by a sender, then, will cause a sender to be highly motivated in the pursuit of perfection in preparation. In associating perfection with maximum value, a sender will attempt maximum commitment of all available resources to the goal of a perfect communication, until competition for limited resources forces a halt. This maximum is represented in Figure 1 at the highest point on the sender's value curve, labeled on the axes as V_{sMax}, sender's maximum value, and R_{sMax}, maximum preparation by originator.

A sender's minimum value of communication, as discussed in the previous section on face, value and resource consumption, is established by the level of unfamiliarity and routineness in the encounter. It was noted that in these circumstances, a sender is likely to consume a slightly greater amount of resources than in familiar situations. This relationship is represented in Figure 1 at the lowest point on the sender curve, labeled on the axes as V_{sMin}, sender's minimum acceptable value, and R_{sMin}, minimum preparation by sender.

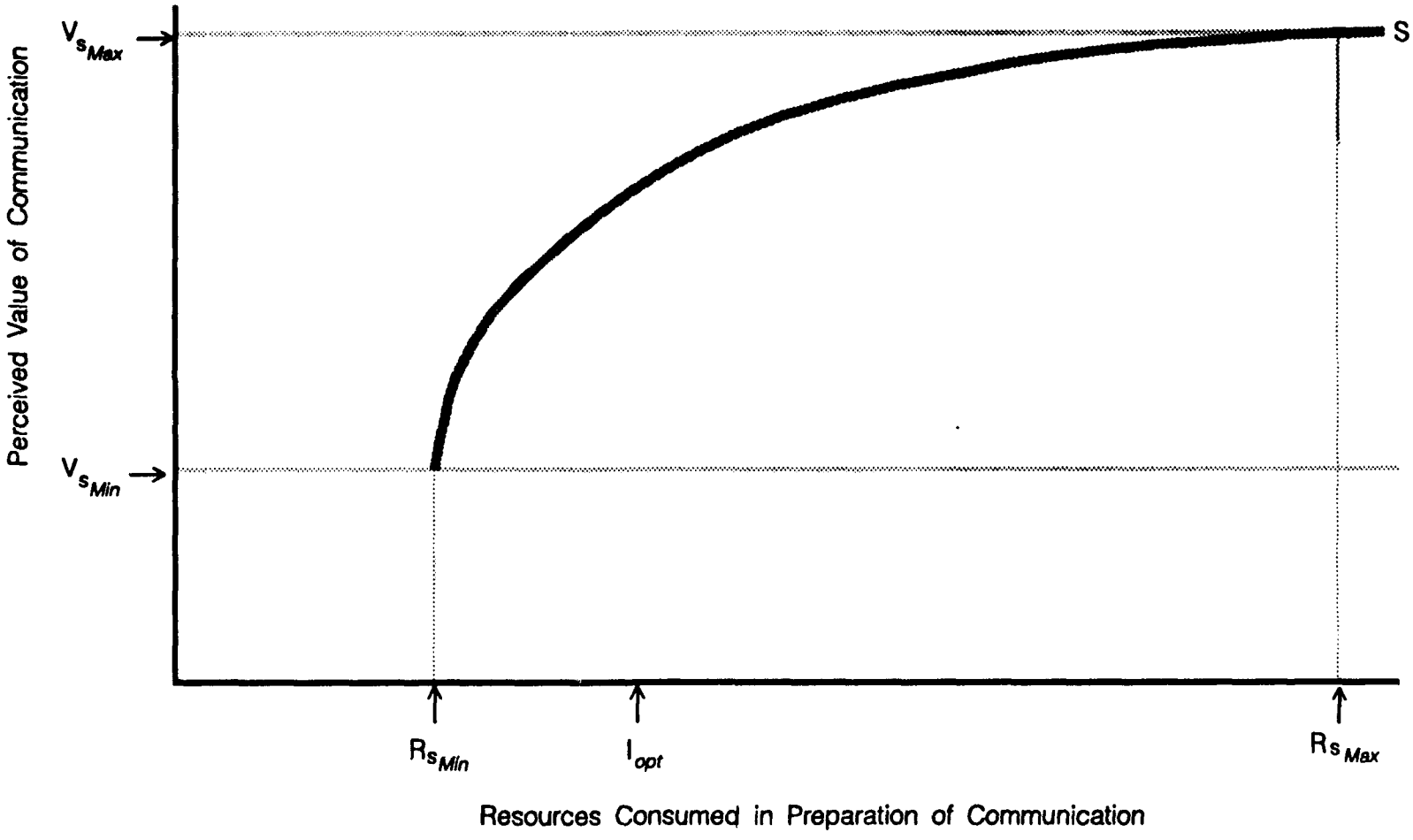
$V_{s_{Max}}$
$V_{s_{Min}}$
S
Perceived Value of Communication
$R_{s_{Min}}$
I_{opt}
$R_{s_{Max}}$
Resources Consumed in Preparation of Communication

Figure 1

12. Summary

A sender establishes a relationship between the value of a communication and the percentage of available resources consumed in preparation of that communication. A significant component of the value of a communication is the quality of presentation, the variable most easily controlled by a sender in increasing value. If a communication has a minimum value to a sender, then a corresponding minimum percentage of resources will be consumed in its production; the minimum is only so low, however, to ensure efficient preparation without risking the loss of face. If perfection, or maximum value, is desired, then a sender will associate with that value a perfect, or total, commitment of all available resources; since there cannot be a total commitment of all resources and the principle of diminishing returns on resource consumption limits achieved value, a sender will commit available resources to approach perceived perfection asymptotically, until competition for scarce resources halts further efforts. This relationship is represented by the curve in Figure 1.

C. THE RECIPIENT

In determining the value of a communication from a recipient's perspective, it is necessary to discuss the variable components of value with respect to the recipient's situation. This will involve an entirely different emphasis on component value, with a different result in communication value than that of a sender. The concept of utility of information, as a means to

assign value to a communication, will be presented, as well as a brief return to the concept of face in communication interactions.

1. The Components of Value

As discussed earlier, the objective components of value in communication are timeliness, relevance, and accuracy (Feltham, 1968). The subjective component of format (Ahituv, 1989) was proposed as the variable most easily manipulated by a sender seeking increased value, and considered a significant component in a sender's determination of value. Quantification of this component is extremely difficult to the recipient, as has been discussed by Ahituv (1980) in the development of an excellent model of the valuation of information systems. In creating a utility function for assessing the value of information systems and their products, Ahituv admits that quantitative variable in the evaluation of format cannot be obtained and renders an analytical approach impossible. Because of this difficulty, Ahituv does not include format as a measurable attribute in his utility function.

2. Presentation Quality and Value

Although Ahituv discusses the valuation of an information system and not a written communication, the principle is sufficiently similar to raise the issue of format (or quality) as a limited factor in the determination of value from a recipient's perspective. This is in contrast to a sender's valuation of a communication: because a sender actually commits resources to increasing quality as a separate component of value, quality becomes a distinct and

significant issue in value determination. A recipient's value, as argued here, is based primarily on the utility of a communication, which is determined by the objective elements of value: timeliness, relevance and accuracy. The remaining subjective attribute of value, referred to here as format, presentation, or in a sender's eyes, quality, can therefore only influence a recipient's value of a communication by varying, positively or negatively, the utility of a communication. That is to say, any enhancement of presentation quality can only add value to a recipient insofar as it can add to the utility of a communication.

3. Presentation Quality and Noise

A sender increasing the consumption of resources in attempting to increase the value of a communication will not necessarily increase utility, and therefore value, to a recipient. To use the mathematical theory of communication, it may be said that a sender is introducing noise into the channel and lessening the intended impact of the signal. The use of multiple fonts, colors and graphic designs in some cases may actually detract from the content and intent of a written communication (Ives, 1982). Also, it has been demonstrated that the use of graphics in itself does not improve communication; the type of graphical representation must be carefully matched to the type of message in order to achieve a positive effect (DeSanctis, 1984; Benbasat and Dexter, 1985; Benbasat and Dexter, 1986). Although most trade publications and claims of graphics vendors would have us believe otherwise, these works

indicate that the use of multi-colored graphics and esoteric printing styles does not necessarily improve communication: the fact that a sender possesses the resources to enhance a physical presentation does not necessarily mean that he or she will also possess the artistic skill or taste to present an effective, attractive presentation (Ives, 1982; Dvorak, 1991). Sender-induced noise, in the form of excessive graphics and distracting fonts, may contribute only to the degradation, rather than the enhancement, of a sender's signal.

4. Recipient Expectations and Standards

If a sender, through either inadequate or excessive use of available resources, inadvertently causes a communication to have a different, or lesser, value to a recipient than intended, one reason may be that the recipient had an expectation of quality from which the communication deviated. If that expectation represents a standard considered a minimum by the recipient, then meeting or exceeding that standard of quality will increase, to a degree, the utility and subsequent value of a communication to a recipient. A familiar example of this occurs at colleges where the requirement to submit papers typewritten is implied but not necessarily stated as a policy. Such an implicit standard is generally out of concern for a minimum utility, in this case legibility, and is subject to broad interpretation: acceptability may range from the use of a manual typewriter, to a dot-matrix printer, to a special-font laser printer. One would hope that a rational professor would be concerned with the content of a paper rather than its presentation, given that the presentation meets a minimum

standard. Papers presented with large, clear type on sturdy paper may be appreciated, and therefore hold a slightly higher value than manually typed papers on onionskin, but only to the extent that they are easier to read. The value of the document will still be based primarily on its utility, rather than the quality of presentation.

5. Positive Deviations from Communications Standards

Positive deviations from an implied standard of presentation (that is, additional quality) may slightly increase value to a recipient. ...t deviations in the extreme may actually hold a negative value. A common example of this is the presentation of a resume. A survey of personnel managers indicated that an implied standard for resumes exists, and that significant deviation from that standard caused a lesser value to be assigned to that resume. Where a minimalist approach to resume design elicited a favorable, or at least neutral response, attempts at attention-getting by applicants through the use of colored paper, varied fonts, and graphics resulted in negative values to the reviewing executives (Morse, 1987). In this case, utility (the sum of the objective attributes) was not a factor in the initial assignment of value by a recipient; the executives appeared to have an expectation of a norm or standard from which they did not appreciate deviance.

6. Negative Deviations, Face, and Recipient's Minimum Value

Negative deviance from an implied standard of presentation (lower quality) on the part of an originator, and the diminishing values associated with

this deviance, may be explained by a brief revisitation to the earlier discussion of face and face-work.

Social interaction relies on widespread understanding of unspoken rules of conduct. Since a newcomer to a social encounter is expected to know and abide by these rules, those already present (the audience) are expected to assume that the newcomer is acting in good faith and behaving as well as possible. This social contract requires further that the members of the audience interpret any failure of the newcomer to meet these standards as accidental or unintentional, and respond by either ignoring the gaffe or graciously excusing it, judging the newcomer no worse for the incident. This protects the newcomer's face. Only under circumstances of extreme or intentional deviance from the social standard is the audience expected (indeed, required) to call attention to the infraction and require immediate remedy. To do otherwise would risk confusion and degradation of the social order; the audience would lose face for not upholding the social contract. (Goffman, 1967)

For the purposes of this argument, a newcomer may be considered a sender of a communication, and the audience considered the recipient. In the case of a communication as a social interaction, the protection of face is of primary concern in establishing minimum value. A recipient, unaware of the resources available to a sender, is in no position to judge a communication's value based on the quality exhibited (resources consumed) and the potential quality (resources available). In the absence of this information, a recipient

must assume that an originator is presenting the best quality circumstances allow. This protects the sender's face: protection of face is the reason, therefore, that a recipient is willing to accept an absolute minimum presentation quality and excuse all but the most extreme or blatant negative deviations from an implied standard. This minimum quality adds very little to a recipient's value of a communication, which is represented in Figure 2 as V_{rMin}, recipient's minimum acceptable value. The quantity of resources required to achieve this value is represented in Figure 2 as R_{rMin}, minimum preparation required by recipient.

7. Recipient's Maximum Value

If the value of a communication to a recipient is based on objective and subjective elements, and the objective elements for any given communication are fixed, then the maximum value of a communication is limited by a recipient's perception of the value of efforts beyond those required to clearly communicate the essential (objective) elements of information. Since a recipient is unaware and unconcerned with a sender's available resources, a communication cannot have a "perfect value" in the same sense that a sender considers perfect value as the total commitment of all available resources. If satisfied with the utility of the communication and unaware of any potential increase in resources committed by a sender, a recipient can only assign value by apparent utility and therefore consider a presentation "good enough." In the case of an implied standard, a recipient's willingness to tolerate deviances from

the standard may severely limit the value of increased resource consumption in preparation of a communication. This maximum value is represented in Figure 2 as V_{rMax}, recipient's maximum value.

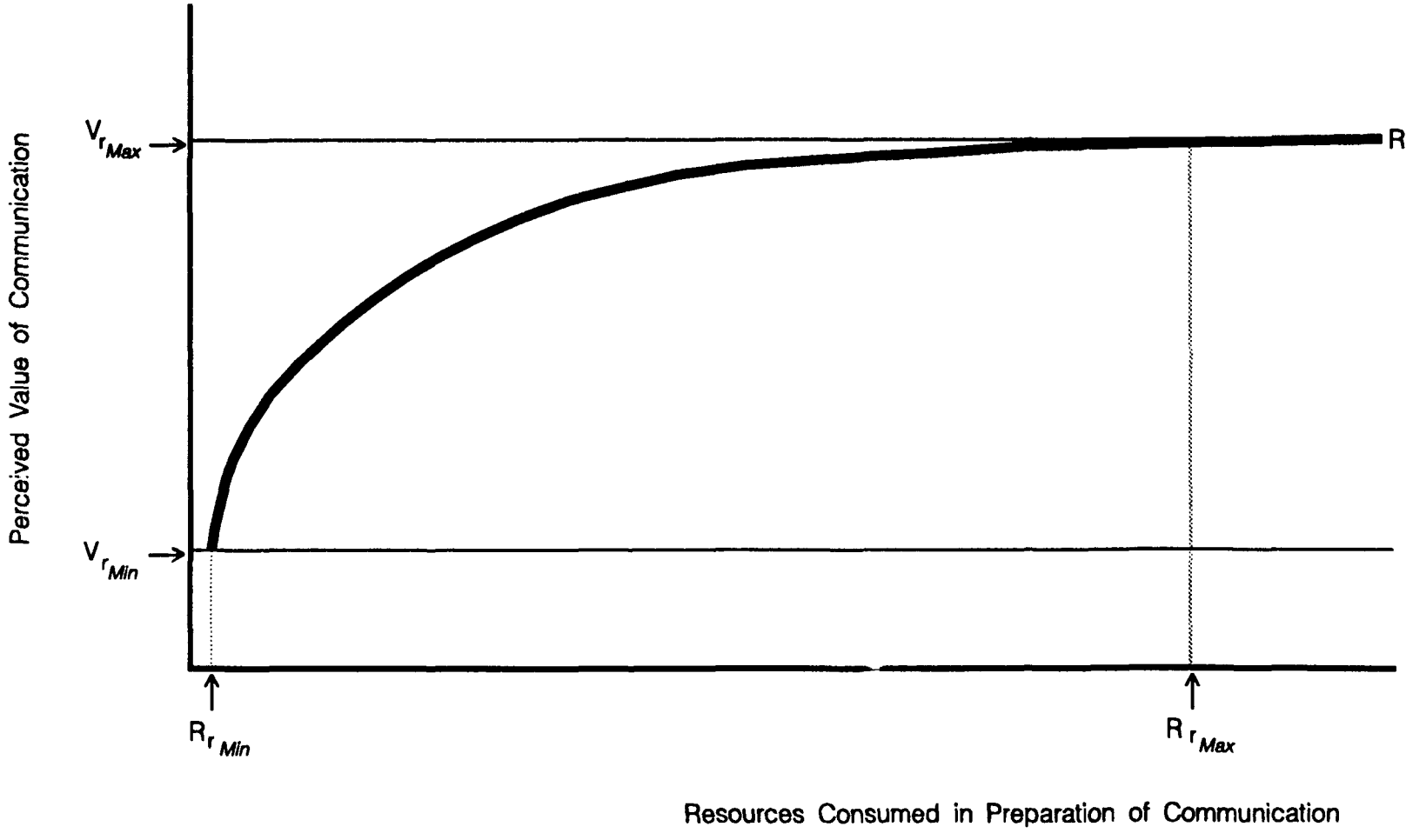
Perceived Value of Communication
$V_{r_{Max}}$
$V_{r_{Min}}$
R
$R_{r_{Min}}$
$R_{r_{Max}}$
Resources Consumed in Preparation of Communication

Figure 2

D. COMBINING THE CURVES: A MODEL OF SURPLUS VALUE

As a result of combining the sender and recipient curves on the same axis, the relationship of the two curves at their extremes illustrates both a surplus value to a recipient and an added value to a sender. The surplus value is due to a difference in the degree to which a sender and a recipient weigh the quality component of a communication's value. The added value results from a sender's desire to maintain face, a recipient's willingness to protect face, and a recipient's interest in the utility of a communication. The model of surplus value is presented in Figure 3. In this section, the relative maximum and minimum values of a communication to a sender and a recipient will be discussed, followed by an explanation of individual points on the model.

A sender's maximum value of a communication is assumed to be higher than a recipient's maximum value. This follows from the earlier discussions of an sender's consideration of maximum value as perfect value, and a perfect commitment of all resources beyond satisfaction of the objective, fixed elements of value. A recipient, on the other hand, cannot assign perfect value to a communication, being unaware of a sender's available resources. This causes a recipient to rely more heavily on the objective attributes of a communication and consider any additional value due to quality (enhanced presentation) as secondary. If the objective attributes of a communication are truly objective to both sender and recipient, then they hold equal value and the remaining

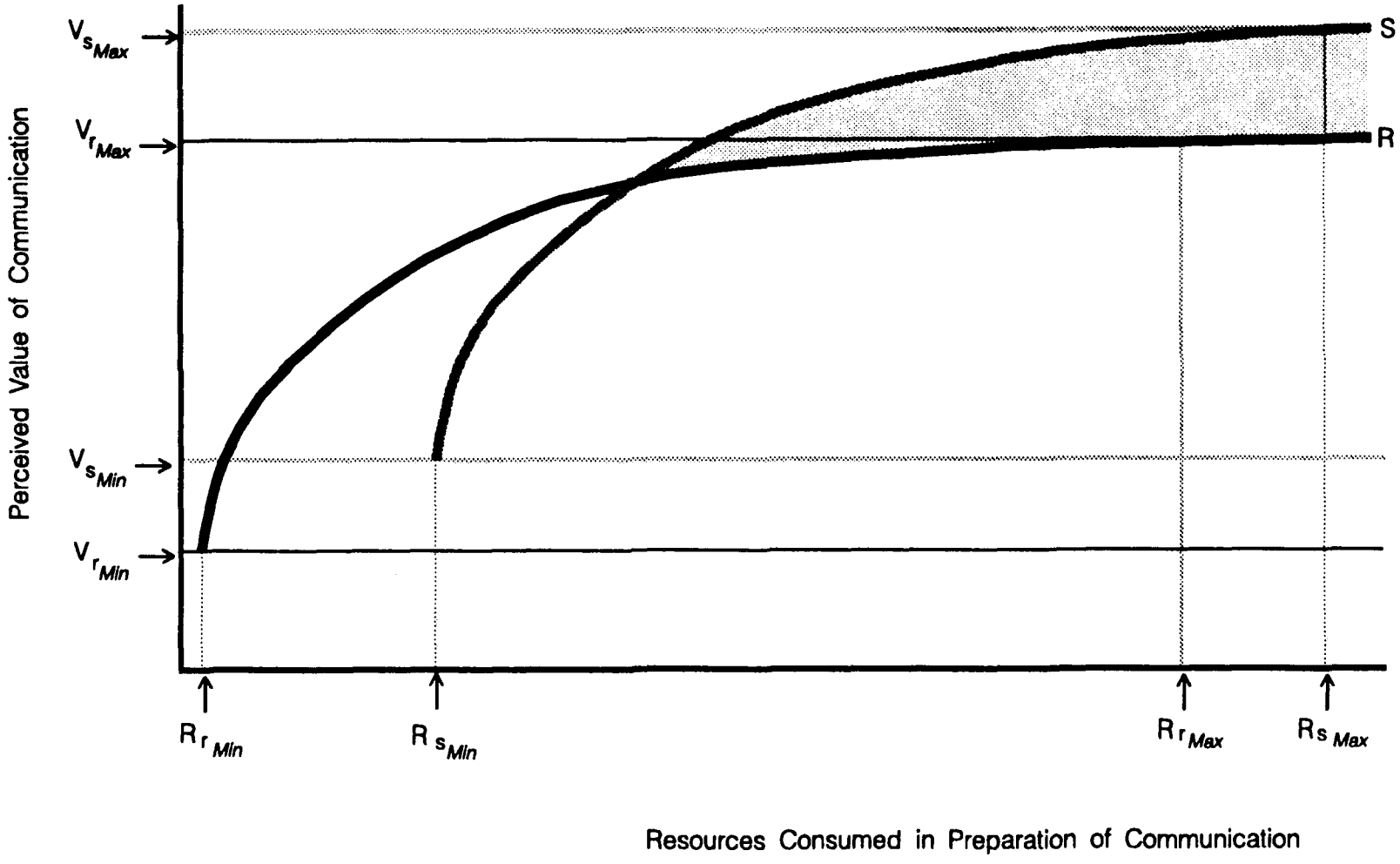
$V_{s_{Max}}$
$V_{r_{Max}}$
$V_{s_{Min}}$
$V_{r_{Min}}$
S
R
$R_{r_{Min}}$
$R_{s_{Min}}$
$R_{r_{Max}}$
$R_{s_{Max}}$
Perceived Value of Communication
Resources Consumed in Preparation of Communication

Figure 3

attribute of presentation quality determines relative value. If a sender has a potential to achieve perfect value in a communication and a recipient cannot, then a sender's maximum value of a communication will always be greater than a recipient's. That is,

$$V_{sMax} > V_{rMax}$$

As discussed in the derivation of the sender and receiver curves, the concept of face figures greatly in determining minimum communication value. A sender must ensure the maintenance of face when preparing a communication of minimum importance, and will therefore be subject to pressure to increase value beyond the minimum requirements necessary to satisfy the basic elements of communication value. A sender will not consider a communication below this value as acceptable, and will not produce it for fear of risking loss of face. A recipient of a communication of minimum importance, however, will be interested only in its utility, determined by the objective elements of value. A recipient, in this minimum value case, will maintain a forgiving attitude toward a sender's maintenance of face, and therefore will always have a lower minimum acceptable value than a sender.

That is,

$$V_{sMin} > V_{rMin}$$

Beyond a sender's minimum preparation requirements, where

$$\{r > s \mid R_{s,r} > R_{sMin}\}$$

a recipient values a communication greater than a sender. This is an area of resource consumption representing a potential added value to a sender of the amount

$$V_{added} = V_r - V_s$$

because the resources consumed in preparing a communication yield a higher value to its recipient than to its sender. The difference in resources required to produce a sender's minimum value communication and a recipient's minimum value communication,

$$R_{sMin} - R_{rMin}$$

represents a potential savings to a sender: this quantity of resources would not be consumed if a sender could prepare documents at the value considered a minimum by a recipient.

Beyond the point where the sender and recipient values are equal, where

$$s > r$$

a sender values a communication greater than its recipient. The resources consumed in achieving a given value to a sender yield a lesser value to its recipient. This value is unneeded by a recipient, is not demanded, does not increase the utility of a communication and cannot be used. This is the Surplus Value of Organizational Communication.

IV. DISCUSSION

A. INTRODUCTION

With the advent of office automation and the subsequent ease with which an average person can generate correspondence of a quality previously achieved only with the assistance of graphical artists and offset type, there seems to have been a steady increase in the intrusion of presentation quality as a major component of business correspondence. An emphasis on the visual aspect of a document now seems to consume resources previously spent on improving the content of the message, or at least on the pursuit of other, more critical goals of a business. This resource consumption in pursuit of subjective embellishment is not yielding the benefits promised by the peddlers of technology. Morgan Stanley economist Stephen Roach has argued that, despite the infusion of tens of millions of personal computers into the workplace, white-collar productivity continues to decline.(Roach, 1991) Paul Strassman, formerly Vice President for Information Services at Xerox and currently the Director of the Department of Defense's Corporate Information Management project, is one of the chief doubters of the value of office automation, and has remarked that the most profitable companies are often those that computerize the least (Gomes, 1991). All of this leads to a suspicion that all is not right in the information systems community, that there may exist an organizational

dysfunction that is providing a steady, deleterious drain on organizational resources.

B. THE SIRENS OF QUALITY

1. Where Things Go Wrong

The reasons for this waste of time and money in pursuit of nebulous goals are many. As presented in the derivation of the originator curve, behavioral factors such as face, self-efficacy, competition and an inability to recognize wasted effort contribute to a squandering of resources perhaps better utilized elsewhere. Even simpler reasons, supported only by the observation of common events, point out where things go wrong.

2. Misguided Justifications

First, consider the manager in the position of justifying to his superiors the purchase of a new office automation system. The expenditure must have a payoff, it must represent the ability to do things faster, easier or with less staff. The speed with which personal computers can generate documents, develop charts and calculate figures is the most straightforward and easily produced figure: the manager can, with little effort and the help of a technology salesman, provide a solid justification for the purchase based on productivity alone. Strassman (1985) has championed this use of office automation toward a highly efficient and productive office, but only in the presence of good planning and strong management. What the manager fails to realize is that, unless his performance is based on production alone, such as

documents per hour, the productivity anticipated is not likely to be realized. The same number of letters, reports and presentations will be required as before office automation. Now that the effort of re-typing a letter has been reduced to seconds, more time will be spent on subjective embellishment of the letter. Effective advertising by software companies will convince the manager of a new standard in document presentation, and that standard will be pursued with vigor. Users of the new equipment will look for applications of the new technology, and jobs that previously did not exist will consume time previously spent on other tasks. The sirens of quality will seduce the manager away from the dowdy promises of increased productivity.

3. The PC as Entertainment

A second source of wasted resources (particularly time) is common to all personal computer users and offered here supported only by anecdotes. That source is the entertainment provided to the user. While the author does not claim to have any sociological basis for this judgement, it appears that many users, having overcome any initial phobias, enjoy playing with their computers. The multiple colors, the different tools offered by increasingly sophisticated software, and the animated aspect of applications rivalling that of the local video-game parlor seem to free the user from any inhibitions to creative pursuit. "Just one more time" behavior combines with a desire to try every conceivable presentation option, and releases in the user an untapped artistic bent that may have been better off left undiscovered. The organization-

based user's group has appeared to not only assist the new computer user in becoming familiar with the technology, but to serve as a forum for sharing esoteric software applications among those entranced by the call of the siren. The entertainment value of the personal computer becomes both a reward for its use and a means of diversion for the worker. This entertainment value is new to the workplace since the advent of the personal computer; one rarely, if ever, heard of typewriter clubs in the days of the IBM Selectric.

4. Whither Productivity?

The differences in productivity between those using office automation and those not should not be addressed solely to the products of office automation, then, but also to the products of resource consumption in areas other than office automation. True productivity gains should be measured organizationally, not solely in the isolated area of office automation. Managing the resources toward the originally stated goals may be the most difficult task of all.

C. OFFICE AUTOMATION AND JOB CONSTRUCTION

The presence of office automation influences the way work is accomplished, and the way work groups function. As an example, consider the Rand experiment by Eveland and Bikson (1988) involving two groups of senior executives, each composed of half recent retirees and the other half near-retirees. Each group was tasked with preparing reports on issues regarding their corporate retirement plan. Each group was given full conventional office

support, but one group was given in addition a full suite of office automation to include networked microcomputers, electronic mail and a standard complement of office software. After a year of effort, both groups submitted what was judged by the authors to be "effective and insightful reports on the transition to retirement, the standard group's product was about 15 pages in length, composed largely of anecdotal advice gathered through conversations. The electronic group's report, by contrast, was about 75 pages in length, composed primarily of tables describing the results of an opinion survey..." Although an ex post facto comparison of the reports led the corporation to value the lengthier, more quantitative report much higher, this author leaves it to the reader to decide which report they would have preferred to read.

D. THE SOCIAL COST

1. The Human Element

The insinuation of the personal computer into the workplace has changed forever the way business is conducted. The striking contrast of the two groups' data gathering and reporting styles in the Eveland and Bikson experiment highlights this difference. The electronic group (an interesting choice of terminology by Eveland and Bikson) conducted their business primarily by electronic mail. Their report was data-intensive, gathered by an opinion survey and tabulated on computers. Remembering that the subject of the report was retirement policy issues (not sales figures), one cannot help but wonder how well the electronic group understood and represented the human feelings of those

questioned. While claiming a more accurate and substantiated assessment of the issues studied through exercising their ability to survey many more subjects, the electronic group may have actually distanced themselves from their subjects by not feeling the need to actually speak to anyone. Illich (1973) addresses the issue of this inadvertent distancing among those purporting to have developed tools which allow people to come together. The automobile, for example, provides a means of shortening the distance between people, when in fact it has only allowed us all to live farther apart. The telephone has eliminated the face-to-face contact and it's accompanying emotions, innuendo, and body language that is essential to human communication. Electronic mail, in its most casual form, has replaced the subtleties of the handwritten note, the vigor an flair of human penmanship, the form of which can communicate far more than mere typed words (consider the effects of typewritten, versus handwritten love letters). Electronic mail has, even replaced the limited human contact provided by the telephone.

2. Changing the Creative Process

Word processing has allowed us to think less and type more, instantly erasing a logical progression of thought, eliminating the trail of a constructive, carefully developed argument. One wonders what great works of composition might have been lost to the ages if it were not possible to see the original works of a Mozart or Shakespeare or Steinbeck, with their multiple crossings-out and re-writes. The recently discovered second half of the original

manuscript of Huckleberry Finn, hand-written, complete with margin notes and editing by Samuel Clemens, has provided scholars with information about the author, his methods of construction and his feelings about what he was writing. The great writers of post-computer generations will not reveal to future generations of literature students anything but their finished product, fully edited and printed with full justification and proportional spacing, and so sacrifice whatever understanding of their soul future admirers may desire.

3. Artdirectoritis

The presentation of literature has itself taken on a life independent of the author, aided and abetted by the member of the publication team known as the Art Director. Even if an author, in all good faith, has presented his thoughts in a carefully constructed masterpiece to a publisher, the art in his writing may be lost due to an inability on the reader's part to make it past whatever graphic embellishment the Art Director has chosen to impress his public. One only needs to glance through most modern periodicals to see that writing has taken a back seat to graphic art. Articles are dissected and strewn throughout pages of advertisements, illustrations and colorful graphics in such a way that it frequently becomes difficult to follow the article through the magazine, much less follow the author's line of reasoning. Page numbers, generally considered a good means of locating continuing sections of an article, are displaced by photographs and artwork that presumably has greater utility to the reader than the ability to continue reading without frustrating, page-flipping

interruptions. Ogilvy (1983) warns of the disease of "Artdirectoritis," and how those afflicted with it speak in hushed voices of "cool grey bands of type" when referring to layout copy, "as if to suggest that copy...was a mere design element."

4. Technostress

This must be the greatest cost of automation: that not only will whatever creative process existed in the development of a thought or argument is lost forever, but that the development itself is a product of automation. The price of computerization is high, and paid for by each user in a loss of some element of humanity sacrificed for the benefit of productivity, speed and convenience. Brod (1984), discusses the consequences of spending long hours--in work and in play--with a machine. The relentless pursuit of a technocentered culture has inhibited us from asking the most significant questions about the physical, psychological, and social changes in ourselves and our children. The fear of being left behind in what has been described as the most significant advance in the history of civilization has caused tremendous amounts of stress on individuals, their families and society in general. Brod offers the example of a hospital administrator buried in computer printouts as the victim of the computer as a source of stress, that the computer provides neither variety nor balance, and is more and more cutting him off from the outside world where his customers, patients with human problems, exist.

5. The Final Social Cost

Roach (1991) reports that over $100 billion is spent annually on office automation products in the white collar sector. If the model presented in this thesis is an accurate representation of these billions of dollars, then there exists a percentage of that money which is being lost to subjective embellishment of communication. The assertions that increased office automation costs are not showing the anticipated payoffs can be partially answered with an examination of surplus value in organizational communication. If this model is valid, then significant quantities of organizational resources are being spent, not on increased productivity, but on the personal satisfaction and entertainment of the senders of communications. This amounts to wasted resources, resources which have a higher utility elsewhere in an organization and in a society.

V. CONCLUSIONS

A. SURPLUS VALUE AND OTHER THEORIES

The concept of surplus value has been introduced in this thesis in direct opposition to the theory of communication known as the conduit metaphor, and confronting the rational behavior predicted by the economic theory of consumer surplus. This is not to assert that these opposing theories are incorrect, but that they do not explain the behavior periodically observed in those using office automation technology in general, and desktop publishing tools in particular.

The conduit metaphor asserts that everything about a communication has value to a recipient; value is not limited to mere objective, measurable elements of information. The conduit metaphor says that the elements of presentation, the environment, the sender himself, and every other subjective element hold value to a recipient because they contribute to the recipient's interpretation of a communication. This theory is not disputed here. The theory of surplus value hinges on the recognition of a <u>difference</u> in value between a sender and recipient, that while increased resource consumption on the part of the sender may have value to a recipient in that it tells about the sender's available resources and priorities, it has a diminishing utility to the extent that it does not increase the transmission of the objective elements of value to the degree the sender anticipates. The personal satisfaction and

entertainment value experienced by a sender in using all available resources toward preparing a communication is not transmitted with equal value to a recipient.

The theory of consumer surplus explains the additional value gained by a consumer when he makes a purchase and gives up less value (money) than the marginal value he gains in making the purchase. From the consumer's perspective, this makes sense: it would not be rational to pay more for an item than it is worth to the buyer. Surplus value in communication, however, does not reflect a market transaction; a recipient could be said to be passive in receiving a communication and desires from that communication some quantity of information. Once the requirement for information is satisfied, any further value due to presentation quality has limited value. With the assumption of a disconnect in direct contact between sender and recipient, a sender is offering what he perceives as additional value, in the form of additional quality, to a recipient, who has limited appreciation for that additional quality. So while each individual may be pursuing rational economic goals individually, the absence of a market transaction prohibits the reconciliation of these goals and results in a surplus value to a recipient that is not demanded.

B. THE MODEL AS A REFLECTION OF OBSERVATIONS

This thesis has attempted to explain a common behavior that has been frequently observed casually (and, unfortunately, practiced) by the author since the advent of the personal computer and its subsequent development into a tool

for office automation and desktop publishing. The tools of office automation have brought to the workplace a means of increasing productivity through word-processing and computations previously achievable only with the assistance of a professional data processing staff. Graphic arts, once the province of trained professionals, is now a field in which anyone can experiment. The presence of such technology has influenced the way we accomplish our work, and unfortunately it is not always the way we had originally planned. Recognizing the human frailties involved at the interface between man and machine, and understanding what is necessary in organizational communication, are the first steps toward reducing the resources wasted on surplus value.

C. RECOMMENDATIONS FOR FUTURE RESEARCH

A model of surplus value has been derived theoretically, using some basic concepts of communication, social psychology and economics to attempt a logical explanation for what the author has observed. This model would benefit from the development of a thorough economic analysis of the factors influencing sender and recipient behavior, and the subsequent creation of a mathematical economic model in which theoretical parameters could be exercised with actual data. The development of such a mathematical model would also be the first step toward the design of experiments which might give empirical support to this theory. To disprove the theory of surplus value, of course, it would be necessary to prove that there did not exist a difference in the value of a

communication between sender and recipient; that the principle of diminishing returns on resources consumed did not exist, and that a recipient and sender each value a given communication the same, regardless of the quantity of resources consumed in the preparation of communication.

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